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The effect of intravitreal triamcinolone acetonid on retinal expression of VEGF, Endotelin-1, ICAM-1, E-Selektin and PECAM in diabetic rats

Purpose: In this study we investigated the effect of intravitreal triamcinolone acetonide (IVTA) in streptozotocin-induced diabetic rats on VEGF, Endotelin-1, ICAM-1, E-Selektin and PECAM expression inthe retina.

Materials and Methods: Male wistar rats were included in the study. Diabetes was induced by intraperitoneal single injection of streptozotocin (50 mg/kg). Diabetes was comfirmed by measuring blood glucose level using blood samples obtained from the tail vein on the third and seventh days. The rats included in the study if the blood glucose level was higher than 250 mg/dl.

Fifteen days after the injection of streptozotocin, a single dose of triamcinolone acetonide (320 µg/ 8 µl) was injected into the vitreous by using a Hamilton micro-injector (30 gauge) and an equal volume of balanced salt solution into the fellow eyes. Rats were sacrificed four weeks after the injection of streptozotocin, and the eyes were enucleated. The retina speciemens obtained from the enucleated eyes were examined with using VEGF, Endotelin-1, ICAM-1, E-Selektin and PECAM markers by immunohistochemistry.

Results: Decreased VEGF, Endotelin-1 and PECAM expressions were found in some retinal layers of rats which were injected TA compared with the control rats. However, ICAM-1 and E-Selektin expressions was not statisticaly significant difference was found between TA injected and control eyes.

Conclusion: In this study, these findings shows that intravitreal triamcinolone acetonide could decrased VEGF, Endotelin-1 and PECAM expression in some layers of diabetic rats. However no change could seen in expression of ICAM-1 and E-Selektin.

Key Words: Diabetic Retinopathy, triamcinolone acetonide, VEGF, Endotelin, ICAM-1, E-Selektin and PECAM